Ronald C. Larson: This is an interview with James C. Evenden in Coeur d'Alene, Idaho on March 23, 1979. This interview is part of a joint historical research project on the history of Western Forest Entomology conducted by the United States Department of Agriculture Forest Service and the Forest Histories Society of Santa Cruz, California. The interviewer is Ronald C. Larson. All ownership of this tape recording and copies thereof rest in the public domain.
Good morning, Mr. Evenden. I would like to begin by getting a brief biographical sketch of your background. Could you tell me when and where you were born?

James C. Evenden: June 19, 1889, McMinnville, Oregon.

Larson: Could you tell me something of your early childhood--explain maybe how you became interested in forestry?

Evenden: My early childhood was spent in McMinnville Oregon where my father worked in a bank and my mother taught music. When I was nine years old, my father and his brother moved to a farm a few miles from Sheridan, Oregon to an area known as Gopher Valley, where we lived for a few years. We then moved to a farm seven miles west of McMinnville where we lived until I was seventeen. At that time my father sold the farm and we moved back to McMinnville. I registered in the School of Forestry at the Oregon State Agricultural College, then known as the Oregon Agricultural College. Why I selected Forestry I did not know. Having worked in saw mills and lumber camps, forestry seemed to be what I wanted, although I knew nothing of the practice or science of forestry.

Larson: You just had to make some choice and you decided on forestry?

Evenden: Yes. I had to make a decision and forestry seemed to be a field that I would enjoy.

Larson: What type of education did you get at Oregon?

Evenden: At that time, the college offered a two year sub-freshman course for non-high school graduates. I registered as a sub-freshman as I had not attended high school.

Larson: So it's a short cut--

Evenden: Yes, it's was short cut.

Larson: How was the school of forestry at that time in Oregon?

Evenden: The school of forestry was relatively new but of a high standard. Under the leadership of George W. Peavy it was recognized with all forestry schools of the nation. Dean Peavy was a fine instructor, a man of high principles, respected and loved by all his students.

Larson: Is that P-E-A-V-E-Y?

Evenden: P-E-A-V-Y.

Larson: Now I realize this was a long time ago and it's probably difficult to remember the details but do you remember what the curriculum was like at Oregon? Did you get entomological information?

Evenden: The regular forestry course; included was a half year of general Entomology. In my senior year, Dr. V.I. Safro, Entomological Department, developed an elective course in forest entomology. Several forestry students registered in this course.

Larson: Was this a forest entomology course?

Evenden: Yes, it was a course which covered rather thoroughly the literature available on forest insects.

Larson: It was a pretty unknown area wasn't it?

Evenden: Yes, indeed it was. However we received a lot of information from Dr. Safro. At his request several of the forestry students took a U.S. Civil Service examination in forest entomology, and received fairly good grades. Now does that answer your question?

Larson: Yes. At what year did you graduate from college?

Evenden: I graduated from Oregon State in 1914. Prior to that time, I had worked as a forest guard for two summers on the Umpqua National Forest. Do you wish me to go into that?

Larson: Yes. Tell me a little but about what you did.

Evenden: I was working under the supervision of forest ranger Otto Weaver. My work was to assist in the construct of a trail along the South Fork of the Umpqua River in the morning and in the afternoon make a foot patrol to several fire lookout points. At that time, the forests were not roaded like they are now.

Larson: If you're constructing a trail, I could see why you would do this.

Evenden: That's about the story. During the start of the second season, Ranger Weaver was transferred to a forest in the southern part of the United States and I was left in charge of the district.

Larson: This was still as an intern before you got your degree?

Evenden: Yes. I was still in college. Nothing serious happened--a few spot fires and other minor tasks.

Larson: How many people were in that forest at that time? Were you by yourself?

Evenden: At that time, I was the only one on that ranger district.

Larson: So maybe you were relieved when nothing did happen.

Evenden: Yes, indeed I was, I hadn't had a great deal of experience in fighting forest fires.

Larson: Of course, on the other hand, maybe it was boring too.

Evenden: No, I had something to do every day, I had to make my daily fire patrols. At that time, there were no phones throughout the forest but I was able to contact a forest service employee--stationed on White Mountain where he was a lookout. In the afternoons we would flash mirrors at each other. Which showed that we were both alive and on the job.

Larson: It was just sort of a very basic communication with another human.

Evenden: Well, it was simply little hand mirrors that we flashed.

Larson: Did you have any consciousness of entomology at that time?

Evenden: No. The only knowledge of forest entomology I had was this course I had taken with Dr. Safro.

Larson: Did you look around?

Evenden: Yes, but I didn't see anything.

Larson: That probably even takes more experience to be able to see something like that.

Evenden: I was called a forest guard.

Larson: Eventually, you went to work for the Bureau of Entomology.

Evenden: Well, eventually, yes.

Larson: What year did you graduate from college?

Evenden: 1914.

Larson: Then what did you do immediately following that?

Evenden: I had taken a Civil Service examination and had an appointment as a forest ranger on the Oregon National Forest. The headquarters were in Portland, Oregon.

Larson: Can you tell me about your experience on the Oregon National Forest?

Evenden: After graduation, I reported to Supervisor Sherrard in Portland, Oregon who told me very briefly that I was to go to Lookout Mountain where I was to build a cabin on top of the mountain, with windows all around. This work would be under the supervision of Ranger Cooper who was in charge of the Parkdale, Oregon ranger station. As I received these instructions, he told me I'd need a horse and a pack horse. I had no idea where Parkdale Ranger Station was and so I asked the clerk as I left Supervisor Sherrard's office and he advised me that the ranger station was about 11 miles from Hood River, Oregon. With my small amount of money, I purchased a riding saddle and a sawbuck pack saddle from a pawn shop and took a night train to Hood River. There I hoped I would be able to buy a saddle and pack

horse. Fortunately, in the morning I found a livery stable that had horses for sale. I purchased a nice riding horse for $40 and a lame pack horse for $15--an expenditure which practically exhausted the small amount of money I had available. With my horses, I rode to Parkdale and reported to Ranger Cooper. This was on the first of July and I remained at the Ranger Station doing odd jobs until after the 4th of July, when with Ranger Cooper, and a Forest Guard by the name of Stanley Walters--we moved to Lookout Mountain Guard Station. Ranger Cooper stayed with us for several days to help with the construction of the cabin; then, Walters and I were left alone to complete the structure. Walters stayed until the cabin was fairly well completed and all the building material was on hand. The existing guard station was located in a small mountain meadow about one half mile below the summit of the mountain. Logs were skidded up the mountain with our horses and the necessary lumber and windows packed in from outside areas. In due course of time, a ten by twelve foot cabin was complete. There were windows on the side and back of the cabin with an Osborn fire finder located on a low tower out in front of the cabin. As the cabin was completed, it became the terminal for several telephone lines from other areas.

Larson: Was this a new development using telephone lines at this time?

Evenden: Yes.

Larson: So, it was probably pretty exciting. It seems rather uneventful now but it must have been quite an experience.

Evenden: It was quite interesting. As the lines were dead ended at the cabin, I was confronted with the construction of a switch board. With a sack full of switches and a few extra telephone bells, it was done. I could work it but I doubt if anyone else could do so. Apart from building the cabin, the season was uneventful. There was one small fire and one legal case.

Larson: Could you describe the legal case?

Evenden: A logger caught his truck load in our telephone wire, which was apparently too low, so he proceeded to cut it. I don't know what the conclusion was as it came to court after I had left the forest.

Larson: Was there some animosity amongst the private loggers and the Forest Service at that time?

Evenden: I don't think so.

Larson: So that was kind of unusual occurrence--his cutting the telephone line.

Evenden: Another interesting experience I had was that after a two day ride and a night spent in the woods, I discovered that the dust raised by a band of sheep going into their bedding ground at night was not a fire.

Larson. You thought it was a fire.

Evenden: Yes. I could see this big dust cloud going up which I thought was smoke.

Larson: How long did you stay in this cabin working that job?

Evenden: I was there all summer. I would like to go back and state that the Civil Service examination that I had taken in forest entomology while in school, had been practically forgotten.

Larson: How many years just then?

Evenden: About six months.

Larson: Was it about two years before or something like that--

Evenden: I was still in school in my senior year. In late July I was offered an appointment with the Bureau of Entomology, as an entomologist ranger. The salary was to be $75 a month--the project headquarters at Missoula, Montanta. As I was to be furloughed from my forest service appointment during the winter, I decided to accept this offer and find out what entomological rangering was all about.

Larson: Excuse me; wasn't $75 a month also quite a bit more than what you were making as a forest guard?

Evenden: No, I was making $1100.00 per annum as an Assistant Forest Ranger.

Larson: It was quite a step down.

Evenden: Yes, it was quite a step down. I gained the approval of Supervisor Sherrard as to my accepting this appointment--as I would complete my assignment on Lookout Mountain. However, my position would

still be open on the Oregon National Forest and I would return in the Spring of 1915. Although I didn't realize it at the time, my career in forest entomology was launched with my acceptance of this appointment.

Larson: Could you describe, then, your first going to the station that you were to work on entomology.

Evenden: I reported to Mr. Joseph Brunner, who was in charge of the forest insect field station at Missoula, Montana.

Larson: Before you go on, could you describe Joseph Brunner?

Evenden: I knew very little about Mr. Brunner and did not spend much time with him. He had been working in entomology for several years. I do not know if he was a trained entomologist and somehow I have the idea that he was appointed through his interest in the loss of timber around Kalispell, Montana.

Larson: The time of Hopkins and Brunner is really a time of pioneers in the field and so even without training he probably knew with some experience as much as many people who had training at that time.

Evenden: Mr. Brunner's instructions to me were very brief. In fact, there were practically none. He advised me that I'd be working with a Mr. Al Wagner and that a small camp was already established near the small village of Potomac, Montana. I met Mr. Wagner the following morning and with our personal belongings and equipment from the office, we traveled by logging train from Bonner, Montana to Potomac, and then by a horse drawn U.S. Mail stage to the so called "established winter camp." To my dismay, I found that the camp consisted of a small seven by nine v-shaped tent pitched on the ground, some bedding rolled up in one corner, a fire ring of stones out in front with a frying pan and a few other cooking utensils. And incidently, there was no food to cook. I don't know what I expected but this was not it. We returned to Potomac where we spent the night and the following day, we rustled some old lumber, an old cooking stove with no legs, and a heating stove and returned to the camp site.

Larson: How did you get these things? Did you literally rustle them?

Evenden: We bought some of them but most of it was given to me by the people who lived in this little town.

Larson: I imagine when you first saw your camp, you felt like leaving and then the people in the town made you feel like staying again.

Evenden: I think I would have returned home if train fare was available. However, in a few days the two of us developed a rather comfortable winter camp with a sleeping tent and a tent too in which to cook and live in.

Larson: How did you begin the entomological work there? Had you had specific instructions to follow or were you to procced on your own?

Evenden: I assumed that Mr. Wagner had instructions as to what we were to do. So, after the camp was completed, which took several days, we started out and as we left the Potomac Valley or the Potomac Basin and reached the stands of lodgepole ~~hole~~ pine, I saw for the first time a pitch tube on a tree killed tree by the mountain pine beetle.

Larson: That must have felt good to find something anyway.

Evenden: Yes, it was a satisfaction to realize that I could identify the insect responsible. In this area the infestation was very heavy with pitch tubes on nearly every tree.

Larson: Was this always suspected by the Bureau?

Evenden: Yes, I am sure this was suspected. Mr. Brunner must have had some knowledge of this condition. Just what we were suppose to do, I never did find out--I guess to find out the extent of the infestation and determine the areas of heavy infestation.

Larson: Now pitch tubes are caused by which insect?

Evenden: When a bark beetle bores through the bark of pine trees and constructs an egg gallery between the bark and the wood, there is a flow of pitch through the mouth of the gallery--or point of entrance. These little gobs of pitch which form on the bark are call pitch tubes.

Larson: So you knew it was a pine beetle.

Evenden: Yes.

Larson: Did you identify which type it was?

Evenden: Yes, I was able to indentify the insect by its gallery pattern. As most all tree killing bark beetles have their own peculiar gallery pattern, the insect can be identified in this manner.

Larson: Which beetle was this?

Evenden: The mountain pine beetle Do you want the technical name?

Larson: Yes.

Evenden: Dendroctonus monticolae Hopk--can you spell it?

Larson: We have that. We can probably spell it. So did you survey the extent of damage and then report in or what did you do to--

Evenden: Soon after that, I found that I was suppose to be working alone so I covered as much of the territory as I could up to the Continental Divide--mapped in the areas of heavy infestations. I made no effort to count the number of infested trees but I made rough maps of the heaviest infestation--and considered my job done.
For something to do, I had visited the logging operation of the Anaconda Copper Mining Company in the Potomac Basin and noticed considerable heart rot in some of the larger ponderosa pine trees.

Larson: Could you tell me before you go on briefly what was done to try and turn back this epidemic of mountain pine beetles. What types of methods did you use and what degree were they successful?

Evenden: This infestation started around Kalispell, Montana in 1911 or earlier and spread down the Continental Divide through the lodgepole pine stands into the Targhee and Wyoming National Forests of Idaho, Control measures were attempted. In some areas small numbers of trees were treated, and large numbers in other places. The first method used was to peel the infested trees with long handled peeling spuds. The standing trees were peeled as high as twelve to fourteen feet exposing the insects beneath the bark. During subsequent years, other methods were used. Trees were felled, infested logs skidded into decks with horses and the decks burned. Sprays which penetrated the bark and killed the insects beneath were used— on standing trees. Fuel oil was sprayed —on the standing infested trees and the trees burned.

Evenden: Certainly one of the largest in our history.

Larson: Going back to 1915 when you had been working on surveying the damage done by the beetles, you started to tell me about the heart rot that you found.

Evenden: I was interested as it seemed to be rather pronounced. I attempted to trace it back to to work of an insect that worked in the terminals of young ponderosa pine reproduction. I had no success. But, it did keep me busy for a while.

Larson: How long were you there at this time.

Evenden: I was there until March at which time I was confronted with the problem of returning to my forest service appointment on the Oregon National Forest or remaining with the Bureau of Entomology. As I could see no future in entomological rangering, I decided to return to the Forest Service.

Larson: Why did you not see a future in entomological rangering, do you remember?

Evenden: I couldn't see under the present set up where I was getting any supervision or any guidance.

Larson: So you saw it as a sort of a dead end position unless you had more training or something--you couldn't see you going farther than where you're at.

Evenden: I think that is true. I had no authority. I had no opportunity to meet forest service personnel or lumbermen and I just couldn't see any future there for me whatever.

Larson: So you went back to the Forest Service--

Evenden: Yes, I decided to go back to my Forest Service position which was still available.

Larson: This is still 1915?

Evenden: Yes. I also received an offer from the District Forester in Missoula Montana to serve as insect control leader for the district. I have forgotten the exact title of that position but this offer was also attractive to me. However, my mind was finally made up by Dr. Hopkins who wrote to me from Washington saying that if I would stay with the Bureau, I could go to North Idaho and establish a sub-station to the Missoula station. This offer appealed to me because it put me on my own so I decided to accept.

Larson: Before going on, could you describe Hopkins. There's very few people around now that could remember him personally. He must have been an inspiring man.

Evenden: I had the pleasure of meeting Dr. Hopkins. I found him to be a very enthusiastic, well trained, kindly gentleman. I'm sorry I didn't have the opportunity to know him better.

Larson: He appears from documentary sources to have had an amazingly amount of energy.

Evenden: Apparently so. His work as sound reference stands. His bulletin "Barkbeetles of the Genus Dendroctonus" stands as a solid reference to the best of my knowledge.

Larson: I think so. He did all of his research in an amazingly short time, too. When you accepted the position to set up a sub-station in Idaho, where was the sub-station?

Evenden: In Coeur d'Alene, Idaho.

Larson: So now you've gotten here. You were to stay here, too, weren't you throughout your career?

Evenden: Yes, I arrived in Ceour d'Alene, Idaho in March 1915. My assignment which I received from Dr. Hopkins was to determine the status of forest insects in this particular region, to establish the seasonal history of the bark beetles, and to obtain phenological records for Dr. Hopkins bioclimatic law.

Larson: Could you explain that--bioclimatic law?

Evenden: As I understood the law, and I'm not too thoroughly versed on the subject. Itis the relation between temperatures, elevation and the development of plant and insect life. As the elevations vary, so will the development of plant and insect life.

Larson: What did you find locally in regard to the bioclimatic law?

Evenden: Well, I fear that the area I covered was too small to show any definate results. There was very little difference in the development of plant life for different elevations in this particular region. I don't think that the variations in elevation were great enough

Larson: Why's that?

Evenden: I think you would need to have greater variations in elevation and exposure. I fear for a small area like this and a variation of several hundred feet would not show the results of this law.

Larson: Did you find that the temperatures did vary--was the temperature actually colder in the higher altitudes?

Evenden: No, that varies also. On a still day, there is very little difference in temperature due to elevation. During cold spells there is no wind, and it will be colder at the base of the mountain, or lower elevation, than at a higher elevation. I'm afraid that's not a very good explanation.

Larson: In this region, that law cannot really be applied.

Evenden: I think the area is too small and the variations are not great enough. I think the law would apply to general elevations.

Larson: When you first came to Coeur d'Alene, what was the city like?

Evenden: Vastly different than what it is today.

Larson: I bet.

Evenden: No roads in the forest at all--I mentioned that. The city was small. Transportation around the lake was by boat. Boats left in the morning and afternoon, no automobiles--

Larson: It was mainly a lumbering town--

Evenden: Lumbering town, yes. There was a road between Coeur d'Alene and Wallace and Kellogg known as the Mullan Trail which was built by Captain Mullan ; I have forgotten the date.

Larson: Where did you work out of here in Coeur d'Alene--where was the sub-station established?

Evenden: Being alone with no funds, all I had for a sub-station and an office was a room in a private home--a large room. I worked from that room, ate my meals at restaurants. Until after the war.

Larson: You also lived in the same room you worked in?

Evenden: Yes.

Larson: Could you explain the research you did, and start with what you began with when you first got here and continue on.

Evenden: I have told you that my assignment was to establish the status of and the damage to the forests of northern Idaho by insects, to establish the seasonal histories of bark beetles, and to obtain the phenological records--we have covered that I believe. I worked on these assignments until May 12, 1917, when I was granted leave without pay to attend the Officers Reserve Training Camp at the Presidio, San Francisco, California. I had previously taken an examination at Ft. George Wright, Spokane and received a commission as a second lieutenant in the Officer's Reserve Corp.

Larson: What did you do during the war?

Evenden: After the training camp, I was recommissioned a first lieutenant and subsequently to captain and in command of "G" Co. 363rd infantry, 91st division, and stationed at Camp Lewis, Washington.

Larson: So you stayed in the area.

Evenden: We went overseas in June 1918 and I returned in March 1919 to San Francisco.

Larson: Did you then claim your old job?

Evenden: Yes. I returned to Coeur d'Alene in June 16, 1919 with the Bureau of Entomology as a scientific assistant. Prior to my return, I corresponded with Dr. Hopkins. He had written that he had planned to assign me to a field station at Ashland, Oregon, but he had written Mr. Miller--you no doubt know of John Miller--

Larson: Yes.

Evenden: --who was in charge of the Ashland, Oregon station. Mr Miller had suggested that it would be desirable to have me stationed in Coeur d'Alene, Idaho. Dr. Hopkins stated that there was much work to be done in the Coeur d'Alene region and along the coast of Washington and perhaps a little later some work may be done in Alaska.

Larson: What was being done here in the war years while you were gone?

Evenden: Not a great deal. Mr. Alec Jaenicke, Forest Service of Portland, Oregon visited this area a time or two but I have no record of what he did

or what was accomplished by his visit.

Larson: Perhaps he just came in to see--

Evenden: Just checking on some of the infestation.

Larson: So you returned to Coeur d'Alene in 1919?

Evenden: Yes.

Larson: At this time were there any major insect problems in the area, in the epidemic stages or what were the conditions?

Evenden: There had been heavy losses in the white pine and other timber stands of northern Idaho.

Larson: In the earlier time, before you left for the war, was this a time of epidemic also?

Evenden: At that time, I knew very little of what was going on in the forests of northern Idaho. I had no money or authority to travel. So, as I stated, my work was limited to foot travel from Coeur d'Alene.

Larson: So, what type of work did you set out to do when you got here in 1919?

Evenden: Working with the Forest Service and timber owners in determining the status of insect damage in their timber stands, planning of control methods and working on method of control for bark beetles and defoliating insects.

Larson: Could you explain to me in a little more detail how the three groups cooperated, the Forest Service, the Bureau of Entomology, and private timber owners. Did you have a place where you met? Was there some type of organization in which you worked through?

Evenden: There was, and still is, an organization known as the Western Forestry Conservation Association I'm pretty sure that's the correct name. All phases of timber ownership were represented at these meetings in which we participated. If the problem was on private land, we contacted the private owners. If on public land, we contacted the public agency responsible.

Larson: And, you worked wherever there was a major problem.

Evenden: Yes.

Larson: But you probably only worked on those major problems-crisis situations.

Evenden: That is about true--yes. We paid no attention to ownership. We worked with the private owner--answered their calls and inspected their timber lands as well as public ownership,

Larson: I take it was no single formal organization that dealt only with forest pests.

Evenden: Not at that time--no. In later years, we did have what was called--now you've heard this name before but I can't quote it--forest insect pest control.

Larson: Council.

Evenden: Forest Insect Control Action Council.

Larson: That's what I was wondering about. I know it was established in the Washington, Oregon area.

Evenden: Yes, we participated.

Larson: In 1919, you began to assess insect population and what sort of damages were being done. Do you remember really what the problems were at that time?

Evenden: Most of my work was in the white pine areas where losses were quite heavy. We did considerable control work in the white pine stands of the Coeur d'Alene National Forest. The control measure we employed was to fell and peel the infested trees.

Larson: You just used the solar heat to kill them?

Evenden: Well, exposing the immature larva from beneath the bark destroyed them. After the larva mature into beetles, we had to stop work. An interesting phase of that control measure, which might be stated here, is that we found that ants, a shrews and field mice fed upon the exposed larva.

Larson: Did the same insects and animals feed on the larva when they were in standing trees without them?

Evenden: No, they couldn't do that, they were beneath the bark.

Larson: Not even ants?

Evenden: No.

Larson: Again, I'd like to ask a question--you talked

about felling and peeling the trees. Did these control measures have any results?

Evenden: I think they were fairly successful in the Coeur d'Alene National Forest. In fact, I think the control materially reduced--the subsequent losses.

Larson: Why is that?

Evenden: We may have caught the outbreak on its downward path, knowing the natural enemies of the bark beetles, parasites and preditors, destroy a large percent of the group. It may be that we did our work at the time when the infestation was on its way out. It's very difficult when you're dealing with nature to tell just what you have accomplished.

Larson: When you came back here in 1919, what staff did you have in the station?

Evenden: No assistants at that time. I was alone and remained alone for two or three years. I'm not sure of the dates on that but it was at least two years.

Larson: Did you still work out of the one room in the private room?

Evenden: No. On my return to Coeur d'Alene, John Miller, who was in charge of the Ashland, Oregon station, came to Coeur d'Alene to help me get started on the establishment of a Coeur d'Alene Forest Insect Laboratory here. I've always been very grateful to Mr. Miller for arranging to have me at Coeur d'Alene because I have enjoyed working in this region a great deal.

Larson: Were you in a separate building--a separate office?

Evenden: Yes, at that time we rented an empty house for which we paid eight or ten dollars a month rent. That was called the Coeur d'Alene Forest Insect Station.

Larson: How long did John Miller stay here to help you set it up?

Evenden: John stayed here several days--a week or ten days and I've always been grateful for his help.

Larson: He had already had quite a bit of experience in at that time.

Evenden: Yes-- I discussed with Mr. Miller the program at the station, which was to involve the study of all

destructive forest insects, the extent of their damage, their potential control, and the importance of insects to the practice of forestry.

Larson: You were to do this all by yourself?

Evenden: Not exactly, but that was the program set up for the forest insect station. As Dr. Hopkins stated, there's much work to be done in this territory. Incidentally, the territory assigned to the Coeur d'Alene Laboratory at that time included regions one and four of the United States Forest Service. A few times we slipped over the border into the northern forests of region two--

Larson: Excuse me. Did the Bureau of Entomology generally follow Forest Service regions?

Evenden: Yes, pretty much so. The station in Portland, I believe, confined its work to Oregon, Washington, and Alaska. In Berkeley, I believe they adhered pretty closely to California and I'm not sure about the other laboratories that were subsequently established. Now that brings us up to date as to the establishment of the station.

Larson: Do you remember how you began to meet all those requirements for parts of your mission?

Evenden: Well, a year or two after the start of the Coeur d'Alene Laboratory, as I stated, I worked alone, then the addition of Mr. H.J. Rust was assigned to the laboratory.

Larson: Was he an entomologist?

Evenden: No, he took a Civil Service examination and was qualified as an entomological aid.

Larson: Which means?

Evenden: Which means he was, perhaps we should say, a self-made naturalist. I can't think of any better title than that.

Larson: Do you remember what sort of exam was given to a person who qualified for that position?

Evenden: No, I do not. Then,--not in proper sequence, the following men came to the station--Mr. A.L. Gibson, L.G. Baumhofer, Don LeLeon, Bill Wilford, Reginald Balch, Tom Terrell, Bob Furniss, W.D. Bedard Sr., Roy Nagle, Robert Denton, Phillip Johnson, Galen Trostle, Red McCoomb, and Dave Fellon. I may have missed one or two. If I have, it was not intentional.

Larson: That was sort of like a--it became a who's who in western forest entomology.

Evenden: Apparently, a lot of them passed through here. They were assigned here,--because I needed them, I guess, then they went on to bigger and better jobs.

Larson: You talked about Rust coming first as an entomological aide. What, then, would be the special duties for each person? Would he really be assisting you in your work?

Evenden: He was an assistance, a jack of all trades. There was no task too great for him. Somehow he always got the job done. He worked with special insects and then identify that particular insect, you worked with; you could call it Mr. X or anything you wanted to.

Larson: So, it's a good area to go in to in terms of learning on the job. You had some other people that learned while on the job. Tom Terrill was one.

Evenden: Yes Tom Terrell was one of the top men at this station.

Larson: Could you explain how he came in to the Bureau of Entomology?

Evenden: He was employed as a spotter or marker of infested trees to be to be treated on a bark beetle control project in the Big Hole Basin Montana, Later in the season I employed him to work on forest insect surveys.

Larson: How was he hired? Did he also take an exam for an entomological aide?

Evenden: His industry and interest was recognized and he was given a temporary appointment in the forest insect division. This appointment was later made permanent and he became an important and valued employee of the division.

Larson: He also didn't have entomological training of any sort.

Evenden: He had had no previous entomological training,

Larson: So, you must have been pretty good at training?

Evenden: You'll have to answer that.

Larson: In the years through the 1920's, were there any major epidemics?

Evenden: The mountain pine beetle infestation, as I have stated, continued to spread down the Rocky Mountain areas into the Targhee National Forest, Grand Teton National Park, Wyoming National Forest, and I suppose as far as the lodgepole pine extended.

Larson: When the depression hit the country in the thirties, did you get much help from the CCC?

Evenden: Yes, we did. The CCC did control work in the Yellowstone National Park and Coeur d'Alene National Forest and I'm sure other areas which I do not remember at this time.

Larson: Were you assigned certain CCC people or did you work with the Forest Service in that regard?

Evenden: Both. We worked with the Forest Service, and also had small crews assigned to our station.

Larson: Do you remember how many you had or did it vary?

Evenden: No, I do not remember.

Larson: I know in California, they were a major influence on the entomological work there. It was construction and it really enabled them to expand their research.

Evenden: We used them on research teams as much as possible.

Larson: Could you tell me about some experiments and novel approaches to treatments that you perhaps looked into during this period--the twenties and thirties.

Evenden: Many ideas were suggested and most of them were tried if at all feasible. We had bark beetle control as our primary objective. We had been conducting control work in practically all the national forests of the region and desired to improve these methods. Some measures seemed to work and others were failures. Anyway, we worked with methods that were available. Many methods of treatments were used, but were constantly striving to develop cheaper, and more effective techniques. I mentioned that we felled infested trees and peeled them. We applied sprays, to both standing and felled infested trees, that penetrated the bark and killed the insects beneath. Trees were peeled and the bark burned, as the larvae of some bark beetles are inbedded within the bark and peeling does not

expose them. All of these methods were laborious, expensive and biologically questioned.

Larson: How so?

Evenden: When you destroy a tree infested with bark beetles, you destroy everything within the tree which includes the natural enemies of the injurious insects. So, you merely reduce the volume of the infestation rather than its potential to increase. Unfortunately, we had no method of control whereby we could destroy the injurious insect and save the parasites and preditors.

Larson: So you worked during these years to try and do that. Do you remember any specific experiments?

Evenden: Yes. Many ideas were advanced to bring about a solution to this problem and many experiments were conducted having as their objectives the improvement of existing methods of control and the development of new procedures. We made a great number of attempts to inject poisonous solutions into white pine trees showing new bark beetle attacks,hoping to destroy the insect broods beneath the bark prior to the entrance of parasitic and predators. Are you interested in knowing how this injection was done?

Larson: Yes.

Evenden: Holes were bored into the tree and the solutions placed in cans and connected to the hole with a rubber tube. Unfortunately, we found that although the tree would take up some of the solution, it only did so to the width of the hole. Does that sound clear to you?

Larson: No, it doesn't.

Evenden: Well, if we bored an inch hole in the tree, the tree absorbs the poison to a width of one inch only; there was no lateral absorption. This was proven by using a dye with the solution.

Larson: So, to be effective, it would have to essentially skirt the whole tree.

Evenden: We tried peeling a strip of bark around the tree and cutting a shallow saw kerf into the cambium layer. Then a rubber band was placed around the saw kerf and the poisonous solution poured into cup made by the rubber band. Apparently, the attacks were too old and as the trees failed to absorb the solution. The reason for this failure was assumed to be the blue stain which appears soon after the insect attacked and which turns the sap wood.

blue. Are you interested in this?

Larson: Yes, it that a bacteria?

Evenden: It is a fungus--. The sap wood is not stained but the fungus creeps through the cellular structure of the wood and apparently blocks the transmission of the fluid.

Larson: So this is a danger that accompanies the insects?

Evenden: Yes. The insects undoubtedly carry the fungus from the brood tree to the new attack as the blue stain appears very soon after the insect attacks.

Larson: So these are really systemic approaches.

Evenden: Yes. Considerable thought in recent years have been given to this type of work, but I'm not familiar with any results that have been accomplished. We were also interested in the flight habits of bark beetles as to the distance they fly or are carried by air currents. We considered this was important because of trying to develop control work in a band or a belt across a forested area to stop the spread of insect outbreaks across such a zone of defense.

Larson: Something like a fire break in other words?

Evenden: Yes. To do this, we flew old weather bureau box kites--attached to piano wire and handled with a winch fastened to the back of a pickup truck. Attached to these kites was a ten foot net with a cyanide jar at the tip end of it. These kites were flown forty-five miles from the nearest timber in prairie regions near Dillon, Montana. The project was successful. Altough only one bark beetle was captured it did demonstrate that bark beetles either fly or are carried by air currents for long distances. Incidentally, with a kite up a thousand or more feet, a ten foot opening is not a very large portion of the atmosphere and I thought that the project, although rather small in its scope, was successful. Then we gave considerable attention to what sort of weather happened in the winter time which resulted in the death of all bark beetle broods in the trees in certain areas. We found that insects would be killed in the fall at a low temperature, but as winter approached a cold hardiness developed which withstood low temperatures. This work was done in the laboratory with a low temperature cabinet.

Larson: Do you remember what temperature that was that killed them--the broods?

Evenden: That varies. In September, we got a hundred percent mortality at ten degrees above zero and no mortality in December at twenty degrees below zero. Then by placing dry ice in our cabinet, we were able to reduce the temperature down to a point where the larva would freeze solid but if you held them in your hands for a few minutes, they would thaw out and come to life. Then again in the spring of that year, in March and April, they began to thaw out so that by May there was no mortality at fifteen degrees.

Larson: So during the summer--the warm months, they had a high instance of mortality with cold temperatures. In the winter months, they could withstand extremely low temperatures and survive.

Evenden: That is correct. That did not explain to us why in some years we had mortality of bark beetle larvae beneath the bark. A study of weather records showed that on those particular years we had abnormally warm temperatures during the winter months for a short period which undoubtedly created activity of the bark beetles beneath the bark of infested trees. Then the weather turning cold or back to normal resulted in mortality. That is our explanation of what happened and of course it was something over which we had no control so could not use.

Larson: Unless there was some way you could go in and warm up trees in the winter time.

Evenden: Yes, that would be right. It did give us a basis for studying weather records and predicting what might or might not happen.

Larson: So, perhaps, a long large epidemic could be ended in the winter time if there were abnormally warm temperatures or a freezing period in the summer time.

Evenden: Yes, in the summer months if it got ten degrees below zero, it would kill all bark beetles.

Larson: In trying systemic control methods, you talked about using a rubber band and did you try any other means in getting this into the tree?

Evenden: Yes, we used a strip of tin which was crimped on one end like a stove pipe so that the other end could be cut off and fitted into the crimped portion and clamped to make it water proof. It was tacked around the tree below the saw kerc, and then the poisonous solution poured into this cup. Although some of

the fluid was taken up by the tree, we had no success in destroying the the bark beetle.

Larson: So none of the work you did using the injection methods or systemic methods worked at that time.

Evenden: We had no success with it. It was expensive and would have been prohibited to use if it had been successful.

Larson: What other methods were tried--novel approaches. Did you try any attractive methods--attract insects in to kill them?

Evenden: We tried trap trees, yes, with the spruce bark beetle infestation. A number of trap trees were cut on the Kootenai National Forest. I know they were heavily attacked by the spruce bark beetles but what results could be claimed, I have no idea. It was done under our supervision; but, aside from the knowledge that the felled trees would attract the beetles the results were negative . The logs were picked up milled and apparently had no effect on the spruce infestation.

Larson: Were there some other approaches you took--experimer

Evenden: No, I mentioned the methods of the control we used--the peeling, burning, and things of that sort, penetrating sprays.

Larson: Did you try any preventive measures? I know that you had to be crisis oriented in that you had to go where there was a problem so you didn't have much time, personnel, or money to spend any other way but did you try any sort of preventive measures?

Evenden: No we did not. I did state, that we had success in putting a screen over the lower ten or twelve feet of the trunk of lodgepole Pine trees that were of high value around buildings. Apparently, the first attack of the beetles occurs at the base of the tree and by preventing that attack we were able to prevent the attack above the screen.

Larson: Did you put the screen right against the bark?

Evenden: Right up against the tree, yes. It didn't matter if it touched the bark at all, they couldn't get through.

Larson: You met and married a local Coeur d'Alene girl. When did you meet her?

Evenden: When I came to Coeur d'Alene in 1915,

Larson: So you didn't waste time.

Evenden: Well, I wasn't married until two weeks before I left Camp Lewis to go over seas.

Larson: To continue your story into the 1940's, I'm sure a lot of these things cover this period that you were here. Was there a change with the war coming in, in the status of the work in forest entomology?

Evenden: With the World War II?

Larson: Yes, in the 1940's.

Evenden: No, I don't think so. I know we were extremely busy here all the time. Apparently, I don't recall any changes, maybe we were a little short of money at times but we were mighty busy.

Larson: I was wondering actually, maybe you had more money but you don't remember so I guess--

Evenden: Well, we were able to get appropriations to do what we wanted to do. They were not overly generous. No appropriations ever are. At that time we were confronted with a terrific spruce bark beetle epidemic which kept all of us quite busy for a number of years. That infestation resulted from a wind throw. In November 1949, a severe wind storm with velocities of 60 to 100 miles per hour tipped over a large number of spruce trees throughout the region. This was not known until it was found that large areas of standing spruce were being killed resulting from spruce bark beetles that had attacked the wind throws and upon emergence attaced the standing trees.

Larson: The first generation being the down trees.

Evenden: Yes, maybe second generation in some trees that had some of their roots in the ground that kept them fairly green. Tremendous volumes of spruce were killed throughout the northern forests of Region One of Idaho and Montana which resulted in control measures and salvage logging. Roads were built into these areas, logs were brought out in an attempt to salvage the spruce. Control measures were adopted. We used penetrating sprays applied to the trunks of infested trees.

Larson: Is the first time you used aerial spraying?

Evenden: This was not aerial spraying. In the back areas the spray was dropped by plane to the control areas in five gallon cans. Large volumes of infested spruce were salvaged whenever possible. Control measures were conducted in the areas that could not be reached by logging. It is not known if we saved much timber as a result of control work. It was laborious, expensive, but they were areas that couldn't be logged and an effort was made to preserve the remaining timber stands. Some success, of course, was accomplished but whether it justified the expenditures, one never knows.

Larson: What type of chemical sprays were you using?

Evenden: We used orthodichlorobenzene.

Larson: You retired in 1955 and through those years did you use DDT--did you come to use it?

Evenden: Yes, we did.

Larson: I understand it's not too effective for bark beetles.

Evenden: No, it has no effect whatsoever on bark beetles.

Larson: What about the defoliating insects--why don't we go back in time and deal historically with those.

Evenden: We had defoliating insects problems confronting us at all times. The spruce budworm, supposedly an eastern insect, was found to be here in the West. It was first discovered on the Kaniksu National Forest.

Larson: Do you know the year that that was found?

Evenden: Yes, 1922. Since that time, it has spread and been a very important insect throughout the northwestern United States. Perhaps the first defoliating outbreak which we had was an outbreak of the lodgepole pine sawfly.

Larson: Could you explain how the sawfly works? How does he attack the foliage?

Evenden: Sawfly larvae feed upon the foliage of the trees that they attack. I hope you don't ask me the name of this insect because I've forgotten.

Larson: Is this a large sawfly --

Evenden: No, the mature larvae are about one inch long. The outbreak was in the lodgepole pine stands in the West Yellowstone area. This situation was of much importance as West Yellowstone is one of the main entrances to Yellowstone Park with the road going through the infested area. A high power sprayer was obtained from the eastern United States and a strip two hundred feed wide along this highway was sprayed with lead arsenate. This destroyed the insects on that strip. Fortunately, I think the infestation was about over but considerable damage occured in areas near the sprayed areas. Then, we had an outbreak of the spruce budworm in the Cody Canyon of Wyoming--the eastern entrance to the Yellowstone National Park. To determine if they could be controlled by spraying from the ground, a small fire pump was used to spray a few trees around one of the dude ranches with lead arsenate with very good success. The following year, an appropriation was obtained and a high power sprayer obtained from the Gypsy Moth Control Organization. The trees around all of the dude ranches along the Shoshone River were sprayed. This was very successful and no trees around the dude ranches were lost.

Larson: What was the spray you were using?

Evenden: Lead arsenate. In the back areas, the kill was almost one hundred percent and if you recall during subsequent years, there was a bad fire in one of these areas. Practically, one hundred percent of the timber was killed.

Larson: I guess that's always one of the dangers accompanying a dry forest

Evenden: Those areas of dead timber become a severe fire hazard.

Larson: We've just discussed the spruce budworm: I know the spruce budworm continues to be epidemic through the years in different locations.

Evenden: Do you want any more of that?

Larson: Yes, I think it would be very important.

Evenden: Are you hungry?

Larson: We are now back from lunch. That was very good sandwiches and very good company. Thank you. Would you like to continue to discuss the spruce budworm?

Evenden: First of all, you're entirely welcome for the sandwiches because you made them. They were good. Now where should we go on?

Larson: Why don't we continue with the spruce bud worm.

Evenden: We had several other small aerial spray projects against the spruce bud worm in an effort to prevent losses of timber. Some of them seemed to be successful. Others, the success seems to be questionable. In fact, it's difficult--in my opinion--to actually determine the results of forest insect control because one loses the evidence as to what would have happened had there been no control. We do know that these outbreaks do sometime die down and other times they don't.

Larson: Did the spruce bud worm outbreak die down?

Evenden: No, as far as I know, there's still spruce bud worm damage in the forests of Region One in some places and they still have it on the Pacific coast.

Larson: What about some of the other defoliating insects?

Evenden: I'm going to switch now to one of the largest aerial spray projects ever attempted in the West. This was to control an outbreak of the tussock moth in northern Idaho. Some four hundred and fifteen thousand acres, I think it is, were sprayed within the privately owned and publicly owned forests around Moscow, Idaho. The headquarters of this project were located in one of the University of Idaho buildings at Moscow. The results of this project, I think, were worthwhile. As far as I know, no timber was lost within the areas sprayed at that time.

Larson: What did you spray with?

Evenden: We sprayed with DDT.

Larson: So this is your first use in a large scale of DDT?

Evenden: I think this was the first large scale use of DDT as a control of forest insects.

Larson: Do you remember the years of this or the dates?

Evenden: 1947.

Larson: When you got the DDT, what did you know about it?

Evenden: We were told that it was one of the greatest discoveries of that period; that it was a spray that worked on the nervous system of insects and they subsequently died.

Larson: What were the instructions you had for use?

Evenden: We were advised to use it--a measure of one pound per acre. It was very effective. A few minutes after the spray had been applied, the insects would drop to the ground.

Larson: Did you have any harmful side affects in the spraying?

Evenden: We had no record of harmful effects.

Larson: Did you do any monitoring? I know you didn't suspect any sort of side affects but I was just wondering, did you monitor cattle or anything like that?

Evenden: No. We had a few complaints but they were dismissed as being unimportant. Department of Fish and Wildlife--inspected some of the streams and reported there were some crayfish found to be dead but no dead trout. We tried not to spray too heavily along the streams, but undoubtedly some of the spray got into the water.

Larson: I wonder what kind of long term effect this could have had on bird populations or within the water system?

Evenden: That we do not know.

Larson: No one has tried to monitor it.

Evenden: No. Not with this project.

Larson: How do you feel about that--the use of DDT?

Evenden: I don't think it should be used. We have to go along with people who are trained in that sort of thing and do not recommend its use.

Larson: There's some debate it seems as to whether--

Evenden: Yes, there is but I must concur with the results gained from the studies that have been made.

Larson: It was very effective on the tussock moth, anyway.

Evenden: Yes, it was.

Larson: It was on the coast too, of Washington. That could have been a major epidemic of disasterous proportions, but it was halted.

Evenden: Apparently so, yes.

Larson: This is one example you can actually take credit for stopping an epidemic because it was so visible.

Evenden: How much of that credit is due, I don't know. Perhaps, I'm belittling our efforts but I'm speaking frankly to you. We do know that those outbreaks die down. We never have had an outbreak of this magnitude--prior to this one. So have no records of what could have happened had there been no control. We did have records of small outbreaks of the Douglas fir tussock moth consisting of some fifty to a hundred acres or more that, although resulted in a heavy kill of the timber, did die down without control.

Larson: I guess we'll never know. Perhaps you could do something statistically to show whether or not there have been positive results from the use of technology to set back insect infestations.

Evenden: Yes, I suppose so. We've attempted to control defoliating insects in a small way through the introduction of parasites. A small outbreak of the Douglas fir tussock moth occurred on the Colville National Forest north of Spokane and a shipment of Calosoma beetles was obtained from the gypsy moth area in the eastern United States and liberated in this area hoping they would become established.

Larson: This is a preditor?

Evenden: Yes--very large colorful beetle. A subsequent examination revealed the wing covers of the beetle--but no results of colonization whatsoever; and the outbreak died down. I cannot believe that the introduction of this handful of beetles eliminated that outbreak. I'd like to but I can't. Then the same thing occurred with an outbreak of the tussock moth near Sun Valley, Idaho. Two species of parasites were obtained from the gypsy moth area in the eastern United States.

Larson: Do you know what they were?

Evenden: I do not; I'm sorry.

Larson: That's fine.

Evenden: The names are available and can be obtained from the records some place. If they're ever needed, I could get them for you. The parasites were liberated in this small area of infestations, as I said in the hills near Sun Valley. Again, unfortunately, when we returned to the area the following year, the outbreak had died down and no tussock moth larvae were available from which to rear the parasites if there were any. These were small scale attempts made at this station as to the introduction of parasites.

Larson: But the were stillborn and there's no host left to introduce the parasites.

Evenden: Along that same line, we reversed the procedure. and shipped a large number of over wintering cacoons of the two-lined sawfly, to the parasite laboratory at Beltsville, Maryland. This sawfly fly outbreak was found just south of the Canadian border on the north fork of the Flathead River. As this was supposed to be an eastern insect, the objectives of this project was to determine if in moving from the eastern United States it had acquired any new natural enemies, and if it had carried the eastern parasites with it. I never did hear the results. That in a measure is the story of defoliators. There are several other species of sawflies that worked on larch. And since my retirement there has been an insect the larch casebearer, that has gained considerable prominence.

Larson: You never had any outbreaks of needle miner or any of those other defoliating insects?

Evenden: Yes, we had needle miner damage in the lodgepole pine in Yellowstone Park, but not of any importance. They're usually associated with some other insect.

Larson: You were able to stay here in Coeur d'Alene throughout your whole career.

Evenden: Yes.

Larson: That's very unusual for any government employee, it seems.

Evenden: Well, may I be facetious and tell you why?

Larson: Sure.

Evenden: I wasn't bad enough to be fired or good enough to be wanted by anyone else.

Larson: I'm sure that's not true.

Evenden: Well, I'm not sure. We were in this so called wild country up here, and I think they just thought they'd leave "this fellow" up here and he'd be alright.

Larson: You still had a major responsibility up here.

Evenden: Yes, I was extemely fortunate. Staying here permitted me to know the people I worked with. It permitted me to know my lumbermen--, my forest service, my land management, and park service associates. It permitted me to know and trust them and they apparently trusted me. I was grateful that I was permitted to stay here all the time.

Larson: While talking about your forest service friends--you retired in 1955 which was shortly after the Bureau of Entomology fell under control of the Forest Service. The Bureau of Entomology became part of the Forest Service. How do you feel about that change?

Evenden: I was a little upset at first because I felt that perhaps forest insects might lose by it. In this feeling, I found that I was entirely wrong. The importance of forest insects seemed to have the same support. I had no feelings of regret after finding what was going on. We worked with--and were a part of the experiment station of the Forest Service, at Ogden, Utah. We could not have received better treatment, more courtesy, than was received from the experiment station personnel. Prior to that time, I had worked very closely with the men in forest management who were responsible for the actual control of forest insects, and I could see no difference in our relationship.

Larson: Where before you had worked on forest lands wherever there was an insect problem, once you were in the Forest Service, did you continue to work in that way?

Evenden: It made no difference whatsoever.

Larson: You still worked on the national parks and forests?

Evenden: Yes, wherever I was called I went freely.

Larson: So the Forest Service didn't put clamps on you in any way.

Evenden: No.

Larson: That's a good point. Could you think of anything else of your career; we're at the point of your retirement. I'd like to ask you some things about after retirement except can you think of anything else about your entomological career that you'd like to bring up?

Evenden: No, I don't at this time. I'm very grateful to the men who worked at this laboratory. They were all fine men that I enjoyed and respected very much. I am grateful and always will be for the courtesy given to me by my friends in the timber management areas both public and private. I'm indebted to them for their hospitality on my travels--a debt that I never had the opportunity of repaying.

Larson: They never travelled through here?

Evenden: Once in a while and those that did would most always stop. One of the most wonderful days of my life was my retirement party given here at which time people came from Idaho and Montana.

Larson: That's the way a retirement party should be.

Evenden: Yes. It was very gratifying.

Larson: I know you've managed to stay busy since that time of retirement. Would you like to tell a little bit about that?

Evenden: Yes, I have been busy. I was always interested in civic activities: Camp Fire, Boy Scouts, Red Cross DeMolay, etc. Upon retirement, I became a member of the board of trustees of the Lake City General Hospital--a small thirty-two bed hospital which was the best Coeur d'Alene had at that time. I found this to be a very interesting experience and stayed with this civic work until February 1978 when my term of chairman of the board of directors Kootenai Memorial Hospital terminated. In the meantime we had built and developed a modern, up to date, one hundred sixty bed hospital which is the medical center of north Idaho--an institution of which Coeur d'Alene is very proud of. It has been a great pleasure for me to have had a small part in the development of this institution.

Larson: You should be quite proud.

Evenden: I am very proud. I put in a lot of time and it was a very gratifying experience. At the present time, I am pretty much out of everything. In fact, I think I have now reached the rocking chair status which I am thoroughly enjoying.

Larson: You are how old now?

Evenden: I will be ninety in June 1979.

Larson: I guess the society can give you full time off here.

Evenden: Well, I have enjoyed it very much.

Larson: I think that brings us about to a close on the interview. On behalf of the Forest Service and the Forest Histories Society and myself, I'd like to thank you very much for participating in this and I hope this material can be utilized by historians and whoever might find a use in it. Thank you.

Evenden: Well, I would like to tell you that I have enjoyed this very much but I'm afraid I haven't been to coherent. This is a new experience for me. I'm afraid that I haven't put things in their logical order--

Larson: I'll intertupt to say that it's been good.

Evenden: I assure you that what material I have and which is duplicated in the files of the Forest Insect Laboratory at Moscow, aside from my personal files will be made available to you or anybody else who is designated to prepare this history.

Larson: Thank you very much.

Evenden: I want to thank you for your courtesy for putting up with my rambling thoughts.

Larson: Nonsense. To stop this sort of sulky face and rambling on, I'll just say that we'll stop here.

Evenden: Well, thank you.